UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# ECOLOGICAL SITE DESCRIPTION

## ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R036XC123NM

Site Name: Limestone Hills (WP 2 & 3)

Precipitation or Climate Zone: 10-16"

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site is characterized by rolling to steep hills and mountain foot slopes. Slopes average 25 percent or more but range from 15 to 75 percent. Exposure or direction of slope is variable. Limestone outcrops, exposed ledges and occasional boulders are not unusual. Elevations range from about 5,000 to 7,800 feet.

Land Form:

1. Hill
2. Scarp slope
3.

Aspect:

1. not significant
2.
3.

| | Minimum | Maximum |
|---|---|---|
| Elevation (feet) | 4500 | 8000 |
| Slope (percent) | 15 | 75 |
| Water Table Depth (inches) | -- | -- |

| Flooding: | Minimum | Maximum |
|---|---|---|
| Frequency | -- | -- |
| Duration | -- | -- |

| Ponding: | Minimum | Maximum |
|---|---|---|
| Depth (inches) | -- | -- |
| Frequency | - | -- |
| Duration | -- | -- |

Runoff Class:

Not available

CLIMATIC FEATURES

Narrative:

Average annual precipitation varies from about 10 inches to just over 16 inches. Fluctuations ranging from about 6 inches to 30 inches are not uncommon. Approximately one-half of the annual precipitation comes in the form of rainfall during the months of July, August, and September, although wintertime precipitation in the form of snow, sleet, or rain is sometimes significant. Spring and late fall months are frequently dry.

The average frost-free period ranges from about 100 to 175 days and in some areas, extends from approximately mid-April to early or mid-October. Average annual air temperatures are 50 degrees F or lower and summer maximums rarely exceed 100 degrees F. Winter minimums typically approach or go below zero. Monthly mean temperatures exceed 70 degrees F for the period of July and August.

Rainfall patterns generally favor warm-season perennial vegetation, while the temperature regime tends to favor cool-season vegetation. Although, spring and fall precipitation is not always adequate for optimum cool-season plant growth. This creates a somewhat complex community of plants on a given range site which is quite susceptible to disturbance and is at or near its productive potential only when both natural warm- and cool- season dominants are present.

| | Minimum | Maximum |
|---|---|---|
| Frost-free period (days): | 51 | 171 |
| Freeze-free period (days): | 130 | 252 |
| Mean annual precipitation (inches): | 10 | 16 |

Monthly moisture (inches) and temperature ($^0$F) distribution:

| | Precip. Min. | Precip. Max. | Temp. Min. | Temp. Max. |
|---|---|---|---|---|
| January | .40 | .91 | 12.9 | 47.0 |
| February | .43 | .65 | 16.6 | 51.2 |
| March | .47 | 1.10 | 20.9 | 57.1 |
| April | .30 | .49 | 26.1 | 65.3 |
| May | .46 | .98 | 33.4 | 74.2 |
| June | .51 | .57 | 41.4 | 84.2 |
| July | 2.15 | 3.45 | 50.4 | 85.1 |
| August | 2.28 | 3.03 | 48.7 | 82.4 |
| September | 1.29 | 1.68 | 41.4 | 77.9 |
| October | .81 | 1.12 | 29.4 | 69.2 |
| November | .38 | .71 | 19.1 | 57.3 |
| December | .53 | .95 | 13.1 | 48.9 |

Climate Stations:

| | | | | | Period | | |
|---|---|---|---|---|---|---|---|
| Station ID | 290640 | Location | Augustine2E | From: | 05/01/26 | To: | 07/31/00 |
| Station ID | 296812 | Location | Pietown 19NE | From: | 09/01/88 | To: | 07/31/00 |
| Station ID | 297180 | Location | Quemado | From: | 08/01/15 | To: | 07/31/00 |

Period

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from wetlands or streams.

Wetland description:

| System | Subsystem | Class |
|---|---|---|
| N/A | | |

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

Soils characterizing this site are typically shallow over limestone, although pockets of deeper soils also exist. There may be loams, clay loams, or sandy loams, and are frequently stony, gravelly, or cobbly. Permeability is moderate to moderately rapid, but the available water capacity may be low due to the shallow nature of the soil.

Characteristic soils are: Deama very gravelly loam, stony loam, 15 percent + slopes

Deama stony, very fine sandy loam

Parent Material Kind: Marine deposits

Parent Material Origin: Limestone- unspecified

Surface Texture:

| |
|---|
| 1. Very stony loam |
| 2. Very cobbly loam |
| 3. Very gravelly loam |

Surface Texture Modifier:

| |
|---|
| 1. Gravelly loam |
| 2. |
| 3. |

Subsurface Texture Group: --

Surface Fragments <=3" (% Volume): --

Surface Fragments >3" (% Volume): --

Subsurface Fragments <=3" (%Volume): 16-38%

Subsurface Fragments >=3" (%Volume): 1-3

| | Minimum | Maximum |
|---|---|---|
| Drainage Class: | well | |
| Permeability Class: | Moderately slow | |
| Depth (inches): | 5 | 20 |
| Electrical Conductivity (mmhos/cm): | 0 | 8.0 |
| Sodium Absorption Ratio: | -- | -- |
| Soil Reaction (1:1 Water): | 7.4 | 9.0 |
| Soil Reaction (0.1M CaCl2): | -- | -- |
| Available Water Capacity (inches): | 1 inch | -- |
| Calcium Carbonate Equivalent (percent): | -- | -- |

PLANT COMMUNITIES

| Ecological Dynamics of the Site: |
| --- |
| |

| Plant Communities and Transitional Pathways (diagram) |
| --- |
| |

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 Narrative Label: HCPC

Plant Community Narrative:
The potential plant community of this site has a mixed grassland, shrub, half-shrub aspect with only occasional tree-type junipers or pinyon pines present. Mid- and short-grasses dominate, with shrubs and half-shrubs following. Forbs are a minor component, but a variety does occur, and they are evenly distributed over the site. Cool-season grasses and shrubs are more prevalent on north- and east- facing slopes, while warm-season short-grasses and half-shrubs prevail on south- and west-facing slopes. This potential plant community is relatively high producing and affords good forage and browse for both livestock and wildlife.
At higher elevations (usually above 6500 feet), black grama is not often found in amounts exceeding 10 percent even in the potential plant community. In these instances, the mountain or curlyleaf muhly and western wheatgrass grouping may occur in amounts up to 20 percent, New Mexico feathergrass may go as high as 35 percent and blue grama may reach 15 percent.

| Ground Cover (Average Percent of Surface Area). | |
|---|---|
| Grasses & Forbs | 18 |
| Bare ground | 18 |
| Surface gravel | |
| Surface cobble and stone | 25 |
| Litter (percent) | 14 |
| Litter (average depth in cm.) | 2 |
| Surface Gravel (% cover) | |

Plant Community Annual Production (by plant type):

| | Annual Production (lbs/ac) | | |
|---|---|---|---|
| Plant Type | Low | RV | High |
| Grass/Grasslike | 263 | 450 | 638 |
| Forb | 26 | 45 | 64 |
| Tree/Shrub/Vine | 61 | 105 | 149 |
| Lichen | -- | -- | -- |
| Moss | -- | -- | -- |
| Microbiotic Crusts | -- | -- | -- |
| Totals | 350 | 600 | 850 |

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| 1 | HENE5 | NM Feathergrass | 120-210 | 120-210 |
| 2 | BOER4 | Black grama | 60-120 | 60-120 |
| 3 | BOGR2 | Blue grama | 30-60 | 30-60 |
| 4 | BOCU<br>SCSC | Sideoats grama<br>Little bluestem | 30-90 | 30-90 |
| 5 | MUMO<br>MUSE<br>PIFI<br>MUWR<br>LYPH<br>PASM<br>KOMA | Mountain muhly<br>Curlyleaf muhly<br>Pinyon ricegrass<br>Spike muhly<br>Wolftail<br>Western wheatgrass<br>Prairie junegrass | 30-90 | 30-90 |
| 6 | ARIST<br>PLJA<br>TRMU | Threeawns<br>Galleta<br>Slim tridens | 6-30 | 6-30 |
| 7 | Various | Others | 6-18 | 6-18 |
| | | | | |
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Plant Type - Tree/Shrub/Vine

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| 8 | JUNIP | Juniper | 18-48 | 18-48 |
| 9 | KRLA2 | Winterfat | 18-48 | 18-48 |
| 10 | CERCO<br>QUERC<br>CEFE<br>RHTR | Mountain mahogany<br>Oakbrush<br>Buckbrush ceanothus<br>Skunkbush sumac | 6-30 | 6-30 |
| 11 | GUSA2 | Broom snakeweed | | |
| 12 | PIED | Pinyon Pine | 6-18 | 6-18 |
| | VARIOUS | Others | | |
| | | | | |
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Plant Type – Forb

| | | | | |
|---|---|---|---|---|
| 13 | 2FP | Perennial forb | 18-48 | 18-48 |
| 14 | 2FA | Annual forb | 6-30 | 6-30 |
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Plant Type - Lichen

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
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Plant Type - Moss

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| | | | | |
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Plant Type - Microbiotic Crusts

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|---|---|---|---|---|
| | | | | |
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Plant Growth Curves

Growth Curve ID NM 0314

Growth Curve Name: HCPC

Growth Curve Description: WP-2 Mixed warm / cool season grassland w/ shrubs and half-shrubs and forb components.

| Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 5 | 7 | 10 | 15 | 25 | 25 | 8 | 5 | 0 | 0 |

## ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

This range site provides habitats which support a resident animal community that is characterized by mule deer, gray fox, bobcat, desert cottontail, rock squirrel, white-throated woodrat, brush mouse, ferruginous hawk, harlequin quail, red-shafted flicker, scrub jay, common raven, bridled titmouse, common bushtit, rufous-sided towhee, chipping sparrow, red-spotted toad, collared lizard, desert short-horned lizard, mountain patch-nose snake, and black-tailed rattlesnake.

Where cliffs and ledges are found associated with the site, golden eagle, great horned owl, prairie falcon, white-throated swift, and cliff swallow nest or hunt over the site. Mourning dove and black-throated sparrow nest on the site. Where it occurs adjacent to ponderosa pine forests, elk may range in to feed. In high mass-production years, Merriam's turkey and band-tailed pigeon feed and western bluebird winters. Mountain lions occasionally hunt on this site.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

| Hydrologic Interpretations | |
|---|---|
| Soil Series | Hydrologic Group |
| Deama | C |
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Recreational Uses:

This site offers good potential for hiking, horseback riding, hunting, nature observation, and photography. It has low to moderate potential for improved camping and picnicking sites, depending on how steep the topography is. It provides natural beauty typical of the mountain foothills of the area in which it is found.

Wood Products:

This site has a limited potential for wood products that is restricted almost entirely to fence post and firewood production.

Other Products:

This site is well suited for grazing by multiple kinds and classes of livestock. Where slopes are steep, however, accessibility may become limiting, and stocking rates need to be properly adjusted. Deterioration of the potential plant community due to inadequately managed grazing is usually characterized by a decline in New Mexico feathergrass, black grama, sideoats grama, mountainmahogany, little bluestem, and winterfat. As these plants decline, they are replaced by juniper, oakbrush, broom snakeweed, and lesservalue grasses such as galleta and threeawns. Because mechanical seeding and brush control are rarely justifiable on this site, the mixed use of both browsing and grazing kinds of livestock is often the best means of maintaining a healthy balance between woody and herbaceous vegetation.

| Other Information: | |
|---|---|
| | |
| Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month | |
| Similarity Index | Ac/AUM |
| 100 - 76 | 3.8 - 5.0 |
| 75 – 51 | 4.7 - 6.8 |
| 50 – 26 | 6.5 - 13.0 |
| 25 – 0 | 13.0 + |

Plant Preference by Animal Kind:

| | Code | Species Preference | Code |
|---|---|---|---|
| Stems | S | None Selected | N/S |
| Leaves | L | Preferred | P |
| Flowers | F | Desirable | D |
| Fruit/Seeds | F/S | Undesirable | U |
| Entire Plant | EP | Not Consumed | NC |
| Underground Parts | UP | Emergency | E |
| | | Toxic | T |

Animal Kind: Livestock

Animal Type: Cattle

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Sideoats grama | Bouteloua curtipendula | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Black grama | Bouteloua eriopoda | EP | P | P | P | D | D | D | D | D | D | D | P | P |
| Blue grama | Bouteloua gracilis | EP | D | D | D | D | P | P | P | P | P | D | D | D |
| Mountain muhly | Muhlenbergia montana | EP | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| NM Feathergrass | Hesperostipa neomexicana | EP | D | D | P | P | P | D | D | D | D | D | D | D |
| Pinyon ricegrass | Piptochaetium fimbriatum | EP | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| Prairie junegrass | Koeleria macrantha | EP | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| Spike muhly | Muhlenbergia wrightii | EP | N/S | N | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| Western wheatgrass | Pascopyrum smithii | EP | D | D | P | P | P | D | D | D | D | D | D | D |
| Mountain mahogany | Cercocarpus montanus | EP | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| Winterfat | Krascheninnikovia lanata | EP | D | D | P | P | P | P | P | P | D | D | D | D |
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## Supporting Information

Associated Sites:

| Site Name | Site ID | Site Narrative |
|---|---|---|

Similar Sites:

| Site Name | Site ID | Site Narrative |
|---|---|---|

State Correlation:
This site has been correlated with the following states:

Inventory Data References:

| Data Source | Number of Records | Sample Period | State | County |
|---|---|---|---|---|

Type Locality:

Relationship to Other Established Classifications:

Other References:
Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus & Mesas Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: McKinley, Catron, Cibola, Socorro, Sandoval, Socorro, Sierra, Grant, Hidalgo, Catron.

| Characteristic Soils Are: | |
|---|---|
| | |
| | |
| | |

| Other Soils included are: | |
|---|---|
| | |
| | |

Site Description Approval:

| Author | Date | Approval | Date |
|---|---|---|---|
| Don Sylvester | 2/15/80 | Durwood E Ball | 3/27/80 |

Site Description Revision:

| Author | Date | Approval | Date |
|---|---|---|---|
| Brenda Simpson | 8/20/02 | George Chavez | 12/16/02 |